AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE	PAGE	OF PAGES
	1	19

2. AMENDMENT/MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO. *(If applicable)*
0002	06/22/2010	SO-10-01831	

6. ISSUED BY

DOT/FEDERAL AVIATION ADMINISTRATION
SOUTHER REGION, ASO-52
1701 COLUMBIA AVENUE
COLLEGE PARK, GA 30337

7. ADMINISTRATED BY *(If other than Item 6)*

DOT/FEDERAL AVIATION ADMINISTRATION
SOUTHER REGION, ASO-52
1701 COLUMBIA AVENUE
COLLEGE PARK, GA 30337

8. NAME AND ADDRESS OF CONTRACTOR *(No., street, county, State and ZIP Code)*

*TO BE COMPLETED BY VENDOR IF NOT COMPLETE

CODE | FACILITY CODE

☒ 9A. AMENDMENT OF SOLICITATION NO.
DTFASO-10-R-00103
9B. DATED *(SEE ITEM 11)*
05/26/2010

☐ 10A. MODIFICATION OF CONTRACT/ORDER NO.

10B. DATED *(SEE ITEM 13)*

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer is ☐ extended ☒ is not extended.

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation on as amended, by one of the following methods:

(a) By completing Item 8 and 15, and returning 1 copies of the amendment; (b) acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hours and date specified.

12. ACCOUNTING AND APPROPRIATION DATA *(If required)*

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS, IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

☐ A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: *(Specify authority)* THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT/ORDER NO. IN ITEM 10A.

☒ B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES *(such as changes in paying office, appropriation data, etc.)* SET FORTH IN ITEM 14,

☐ C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:

☐ D. OTHER *(Specify type of modification and authority)*

E. **IMPORTANT:** Contractor ☒ is not, ☐ is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION *(Organized by UCF section headings, including solicitation/contract subject matter where feasible.)*

This Amendment to Solicitation DTFASO-10-R-00103 is:

To provide a list of complied questions and responses to solicitation. No other changes.

Site visit was not mandatory.

Proposal due date is still Wednesday, June 23, 2010 by 5:00 pm (Eastern Standard Time). Email all offers to bertha.russell@faa.gov or mail to the appropriate address as listed in the solicitation by the due date.

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER *(Type or print)*		16A. NAME AND TITLE OF CONTRACTING OFFICER *(Type or print)* BERTHA RUSSELL	
15B. CONTRACTOR/OFFEROR *(Signature of person authorized to sign)*	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA BY *(Signature of Contracting Officer)*	16C. DATE SIGNED 6/22/2010

Complied Questions and Responses:

1. Page S-103 Detail 4-S301 & 5-301:
Framing plan on the junction level. Can the C10x15.3 channel be installed in two sections as it is too long to get up the stairs and into the room in one piece?

R. Per note #C.14 on S000, steel fabricator must verify connection strength and supply alternative connections for review. Splice cannot occur at steel beam midpoint, it can occur at third points.

2. Page A121-122-123:
Leaks and rust above ceilings: Can the rust removal on each level above ceilings be based on an allowance as to make the bidding more equal between all bidders?

R. Site visit should give all contractors equal opportunity to estimate cost.

3. Are the rust areas on the siding part of this scope?

R. Removal of rust is part of scope, including paint over rust stains on siding.

4. Page S-105 Detail 1-S301:
Based on field measurements this detail is not feasible please provide more details.

R. Stiffener plates are required on front and back of column as shown on detail. Contractor to verify in field and provide revised sizes for approval on steel shop drawings.

5. Page S-300 Detail 2-S301:
How do stiffening plates attach to existing brace?

R. Welding as shown on detail 2/S301. See upper left corner of detail.

6. Will staging area be allowed at base of tower?

R. Yes, the grass area just east of the base of the tower will be the contractor staging area.

7. According to specification section 75216 page 298-311 cold process roofing system is called out. On plan A600 S600/2&3 call for single ply roof fully adhered. Which will be used?

R. Single Ply membrane roofing (fully adhered) as shown on drawings. Please see attached spec to address roofing.

8. Will any nightwork be required on this project?

R. Yes, all night work must be coordinator with the Resident Engineer (RE)

9. Will any nightwork be required for this project?

R. Yes, all night work must be coordinator with the Resident Engineer (RE)

10. Drawing E800, Note 1 calls for new Square D EDB Main Breakers for Panels A & B. Type EDB breakers will not fit in this type panel. Does the FAA want a type QOB breaker instead?

R. Panel A & C should not have the main breaker changed. Panel B & EM shall have the main breaker changed to a non-automatic molded case switch.

The following corrections will need to be made:

E800, change Note 1 to read "Main breaker shall be changed to a non-automatic molded case switch". The reference to Note 1 should be only to Panel B & EM and removed from Panel A and C.

E500, delete "Main breaker shall be SQ-D type EDB" from Panel B & C. Add "Main Breaker shall be replaced with a non-automatic molded case switch" for Panels B & EM.

11.. Drawing E165 shows new air terminals on each of the six corners of the cab roof. There are antennas currently mounted at each of these corners. Will the FAA be responsible for relocating these antennas prior to starting the project? (Currently, there are 3 air terminals mounted on the cab roof. They are mounted at midpoints on the rail sections. Antennas are currently mounted on the other 3 railing midpoints.)

R. The existing air terminals shall be removed and 6 new terminals added. The mounting locations will be in the center of the railing for (4) sides and between the center and corner on the (2) sides that have antennas in the center of the railing. This configuration will meet both FAA-O19e and NFPA 780.

SECTION 07 54 19 – ADHERED THERMOPLASTIC MEMBRANE ROOFING

PART 1 - GENERAL

1.1 DESCRIPTION

A. Scope: To install a complete adhered roofing system including membrane, flashings and other components.

B. Related Work: The work includes but is not limited to the installation of:

1. Substrate Preparation
2. Roof Drains
3. Wood Blocking
4. Insulation
5. Roof Membrane
6. Fasteners
7. Adhesive for Flashings
8. Roof Membrane Flashings
9. Walkways
10. Metal Flashings
11. Sealants

C. Upon successful completion of work the following warranties may be obtained:

1. Manufacture's Warranty
2. Roofing Contractor Warranty

1.2 QUALITY ASSURANCE

A. This roofing system shall be applied only by a Roofing Contractor authorized by The Manufacturer prior to bid (Manufacturer's "Applicator").

B. Upon completion of the installation and the delivery to The Manufacturer by the Applicator of a certification that all work has been done in strict accordance with the contract specifications and Manufacturer's requirements, an inspection shall be made by a Technical Representative of The Manufacturer to review the installed roof system.

C. There shall be no deviation made from the Project Specification or the approved shop drawings without prior written approval by the Owner, the Owner's Representative and The Manufacturer.

D. All work pertaining to the installation of Manufacturer's membrane and flashings shall only be completed by Applicator personnel trained and authorized by The Manufacturer in those procedures.

E. Membrane manufacturer shall to have successfully produced thermoplastic roofing membranes for over 10 years.

F. Membrane manufacturer shall confirm in writing that the formulation of membrane has remained virtually unchanged for over 10 years.

G. Membrane manufacturer shall have a direct employee designated as the technical representative. The technical representative shall visit the roof at the start of the project, and once a week until completed. The technical representative shall conduct a final inspection prior to the issuance of warranty.

1.3 SUBMITTALS

At the time of bidding, the Applicator shall submit to the Owner (or Representative) the following:

A. Copies of Specification.

B. Samples of each primary component to be used in the roof system and the manufacturer's current literature for each component.

C. Written approval by the insulation manufacturer (as applicable) for use and performance of the product in the proposed system.

D. Sample copy of the Manufacture's warranty.

E. Sample copy of Applicator's warranty.

F. Dimensioned shop drawings which shall include:

1. Outline of roof with roof size and elevations shown.
2. Details of flashing methods for penetrations.
3. Technical acceptance from the Manufacturer.

G. Certifications by manufacturers of roofing and insulating materials that all materials supplied comply with all requirements of the identified ASTM and other industry standards or practices.

H. Certification from the Applicator that the system specified meets all identified code and insurance requirements as required by the Specification.

I. Material Safety Data Sheets (MSDS)

1.4 CODE REQUIREMENTS

The applicator shall submit evidence that the proposed roof system meets the requirements of the local building code and has been tested and approved or listed by the following test organizations. These requirements are minimum standards and no roofing work shall commence without written documentation of the system's compliance, as required in the "Submittals" section of this specification.

A. Factory Mutual Research Corporation (FM) - Norwood, MA

1. Class 1-90 (for increased wind exposure)

B. Underwriters Laboratories, Inc. - Northbrook, IL

1. Class A assembly

1 .5 PRODUCT DELIVERY, STORAGE AND HANDLING

A. All products delivered to the job site shall be in the original unopened containers or wrappings bearing all seals and approvals.

B. Handle all materials to prevent damage. Place all materials on pallets and fully protect from moisture.

C. Membrane rolls shall be stored lying down on pallets and fully protected from the weather with clean canvas tarpaulins. Unvented polyethylene tarpaulins are not accepted due to the accumulation of moisture beneath the tarpaulin in certain weather conditions that may affect the ease of membrane weld ability.

D. As a general rule all adhesives shall be stored at temperatures between 40° F (5° C) and 80° F (27° C). Read instructions contained on adhesive canister for specific storage instructions.

E. All flammable materials shall be stored in a cool, dry area away from sparks and open flames. Follow precautions outlined on containers or supplied by material manufacturer/supplier.

F. All materials which are determined to be damaged by the Owner's Representative or manufacture are to be removed from the job site and replaced at no cost to the Owner.

1 .6 JOB CONDITIONS

A. All materials may be installed under certain adverse weather conditions but only after consultation with manufacture, as installation time and system integrity may be affected.

B. Only as much of the new roofing as can be made weather tight each day, including all flashing and detail work, shall be installed. All seams shall be heat welded before leaving the job site that day.

C. All work shall be scheduled and executed without exposing the interior building areas to the effects of inclement weather. The existing building and its contents shall be protected against all risks.

D. All surfaces to receive new insulation, membrane or flashings shall be dry. Should surface moisture occur, the Applicator shall provide the necessary equipment to dry the surface prior to application.

E. All new and temporary construction, including equipment and accessories, shall be secured in such a manner as to preclude wind blow-off and subsequent roof or equipment damage.

F. Uninterrupted water stops shall be installed at the end of each day's work and shall be completely removed before proceeding with the next day's work. Water stops shall not emit dangerous or unsafe fumes and shall not remain in contact with the finished roof as the installation progresses. Contaminated membrane shall be replaced at no cost to the Owner.

G. Arrange work sequence to avoid use of newly constructed roofing as a walking surface or for equipment movement and storage. Where such access is absolutely required, the Applicator shall provide all necessary protection and barriers to segregate the work area and to prevent damage to adjacent areas. A substantial protection layer consisting of plywood over 9 oz felt or plywood over insulation board shall be provided for all new and existing roof areas that receive rooftop traffic during construction.

H. Prior to and during application, all dirt, debris and dust shall be removed from surfaces either by vacuuming, sweeping, blowing with compressed air and/or similar methods.

I. The Applicator shall follow all safety regulations as required by OSHA and any other applicable authority having jurisdiction.

J. All new roofing waste material (i.e., scrap roof membrane, empty cans of adhesive) shall be immediately removed from the site by the Applicator and properly transported to a legal dumping area authorized to receive such material.

K. The Applicator shall take precautions that storage and/or application of materials and/or equipment does not overload the roof deck or building structure.

L. Flammable adhesives and deck primers shall not be stored and not be used in the vicinity of open flames, sparks and excessive heat.

M. All rooftop contamination that is anticipated or that is occurring shall be reported to the manufacture to determine the corrective steps to be taken.

N. The Applicator shall verify that all roof drain lines are functioning correctly (not clogged or blocked) before starting work. Applicator shall report any such blockages in writing (letter copy to manufacture) to the Owner's Representative for corrective action prior to the installation of the roof system.

O. Applicator shall immediately stop work if any unusual or concealed condition is discovered and shall immediately notify Owner of such condition in writing for correction at the Owner's expense (letter copy to manufacturer).

P. Site cleanup, including both interior and exterior building areas that have been affected by construction, shall be completed to the Owner's satisfaction.

Q. All landscaped areas damaged by construction activities shall be repaired at no cost to the Owner.

R. The Applicator shall conduct fastener pullout tests in accordance with the latest version of the SPRI/ANSI Fastener Pullout Standard to help verify condition of the deck/substrate and to confirm expected pullout values.

S. The membrane shall not be installed under the following conditions without consulting Manufacture's Technical Dept. for precautionary steps:

1. The roof assembly permits interior air to pressurize the membrane underside.
2. Any exterior wall has 10% or more of the surface area comprised of opening doors or windows.

3. The wall/deck intersection permits air entry into the wall flashing area.

T. Precautions shall be taken when using solvent adhesives at or near rooftop vents or air intakes. Adhesive odors could enter the building. Coordinate the operation of vents and air intakes in such a manner as to avoid the intake of adhesive odor while ventilating the building. Keep lids on unused cans at all times.

U. Protective wear shall be worn when using solvents or adhesives or as required by job conditions.

V. The membranes are slippery when wet or covered with snow, frost, or ice. Working on surfaces under these conditions is hazardous. Appropriate safety measures must be implemented prior to working on such surfaces. Always follow OSHA and other relevant fall protection standards when working on roofs.

1.7 WARRANTIES

A. Manufacturer's 20-Year System No Dollar Limited Warranty: Upon successful completion of the work to Manufacturer's satisfaction and receipt of final payment, the Manufacturer's *20* Year No Dollar Limit System Warranty shall be issued. A minimum 60 mph wind warranty coverage is required.

B. Applicator/Roofing Contractor 5-Year Warranty: The Applicator shall supply the Owner with a separate 5 year workmanship warranty. In the event any work related to roofing, flashing, or metal is found to be within the Applicator warranty term, defective or otherwise not in accordance with the Contract Documents, the Applicator shall repair that defect at no cost to the Owner. The Applicator's warranty obligation shall run directly to the Owner, and a copy shall be sent to The Manufacturer.

C. Owner Responsibility: Owner shall notify both The Manufacturer and the Applicator of any leaks as they occur during the time period when both warranties are in effect.

PART 2 PRODUCTS

2.1 GENERAL

A. The components of the Adhered roof system are to be products as indicated on the Detail Drawings and specified in the Contract Documents.

2.2 MEMBRANE

A. Reinforced membrane

B. Membrane shall conform to ASTM D4434-96 (or latest revision), "Standard for Polyvinyl Chloride Sheet Roofing," Classification: Type II or III

C. As manufactured, membrane shall conform to the following physical properties:

1. Color to be white.
2. Energy-Star rated with a minimum .68 solar reflectance and a three-year aged reflectance of at least .50 per ASTM E903.

3. Approved Manufactures: Sika, Fibertite XT, GenFlex
4. Membrane to be 80 mils minimum, a nominal membrane thickness will not be accepted.
5. No TPO membranes will be accepted.

2 .3 FLASHING MATERIALS

A. Wall/Curb Flashing

1. Reinforced Membrane: A fiberglass reinforced membrane adhered to approved substrate using manufactures' adhesive. Consult Product Data Sheets for adhesive options and additional information.

B. Perimeter Edge Flashing

1. Edge-Tite Flashing: A prefabricated perimeter edge attachment and fascia assembly provided by manufacture. Edge-Tite is made from three distinct parts. The (base) rail is made of formed 0.050 inch (1.3 mm) thick, 5052-H32 mill-finish alloy aluminum in 12 foot (3.6 m) lengths, provided with predrilled fastening holes. The spring clips are 6 inches (152 mm) wide and made from 0.020 inch (0.5 mm) stainless steel. The snap-on fascia is made from 24 gauge (0.6 mm) G90 steel or from 0.040 inch (1.0 mm) aluminum in 12 foot (3.6 m) lengths. Edge-Tite is available in a variety of fascia widths. Color and fascia metal shall be standard manufactures color.
2. PVC Coated Clad Metal: A PVC-coated, heat-weldable sheet metal capable of being formed into a variety of shapes and profiles. Clad is to be of 25 gauge, G90 galvanized metal sheet with a 20 mil (1 mm) unsupported PVC membrane laminated on one side. Non-Typical Edge

C. Miscellaneous Flashing

1. Reglet: A heavy-duty, extruded aluminum flashing termination reglet used at walls and large curbs, reglet is produced from 6063-T5, 0.10 inch - 0.12 inch (2.5 mm - 3.0 mm) thick extruded aluminum.
2. Prefabstack: A prefabricated vent pipe flashing made from 0.048 inch (48 mil/1.2 mm) thick membrane.
3. Prefabcorners – Universal: Prefabricated outside and inside flashing corners made of 0.060 inch (60 mil/1.5 mm) thick membrane that are heat-welded to membrane or base flashings.
4. Multi-Purpose Sealant: A urethane sealant used at flashing terminations. Consult Product Data Sheet for additional information.

2 .4 INSULATION/OVERLAYMENT/RECOVER BOARD

A. Isocyanurate Insulation: Rigid isocyanurate foam insulation with black mat facers, for field and tapered systems will be used. Insulation system will have a minimum "R" value of 30. Insulation shall be a minimum of 20 PSI. Tapered crickets will be 1/2" in 12" min slope

B. DensDeck® Prime: A fire-tested, gypsum hardboard with glass-mat facers and a pre-primed surface on one side. DensDeck Prime is provided in a 4 x 8 ft (1.2 x 2.4 m) board size and in thicknesses of 1/4, 1/2 and 5/8 inch (6, 13 and 16 mm).

2 .5 ATTACHMENT COMPONENTS

A. Membrane Adhesive

1. Solvent Based Adhesive: A solvent-based reactivating-type adhesive used to attach the membrane to the substrate, either horizontally or vertically. Consult Product Data Sheets for additional information. Application rates are as follows:

   a. Due to an increase in viscosity when outdoor temperatures during installation are below 40° F (5° C), add ½ gal/100 ft² (0.2 l/m²) to rate for estimating purposes. Do not install when air temperature is within 5° F of dew point. Solvent evaporation time increases significantly when temperatures drop. Use a water-filled, foam-covered lawn roller to consistently and evenly press the membrane into the adhesive layer.

2. Water Based Adhesive: A water-based adhesive used to attach the membrane to horizontal or near-horizontal substrates. Consult Product Data Sheets for additional information. Application rates are as follows:

   a. Do not install when outdoor or substrate temperatures during drying period are expected to fall below 40° F (5° C).
   b. Use a water-filled, foam-covered lawn roller to consistently and evenly press the membrane into the adhesive layer.

B. Insulation Adhesive:

1. OMG Olybond500 Adhesive: A two component (Part A and B) low-rise polyurethane foam used to attach insulation to approved compatible substrates. Adhesive is applied with in bands 12 in. on center. Application rates are typically one gallon per square. Additional adhesive may be required for rougher surfaces. Consult Product Data Sheets for additional information.

   a. Not recommended for use with insulation boards larger than 4' x 4'.
   b. Place insulation board into the adhesive shortly after it has reached its maximum rise (typically within 2 minutes) and walk into place.
   c. Job site conditions may affect performance. Adhesive shall not be used if surface and/or ambient temperatures are below 45°F (7°C) during application or subsequent curing time.
   d. Minimum product temperature before entering the dispenser should be 72°F (22°C).
   e. Store between 45°F (7°C) and 95°F (35°C).
   f. Protect from freezing, any product that does freeze must be removed from the job site and disposed of per State and Federal regulations.
   g. Adhesive shall not be used during inclement weather.
   h. Adhesive shall not be applied to wet or damp surfaces.
   i. A min. of 14 gage bar placed 4 ft. (1.2 m) from the roof edge and fastened 12 in. (305 mm) o.c. to the structural deck with acceptable fasteners is required after installation of the roof membrane. The bar is to have a cover strip hot air welded over it. (only if building is over 30 ft in height.)

C. Concrete Fasteners-CD10: A nail-in, corrosion-resistant fastener used with 14 gage bar to attach insulation or membrane to normal weight concrete roof deck. CD10 has a shank diameter of 0.215 inch (5.5 mm), a split diameter of 0.265/0.275 inch (6.7/7.0 mm) and a flat head with a 0.435 inch (11 mm) diameter. Consult Product Data Sheet for additional information.

D. Pealstop Bar: An extruded aluminum, low profile bar used with certain fasteners to attach to the roof deck or to walls/curbs at terminations, penetrations and at incline changes of the substrate. Peal stop is a 1 inch (25 mm) wide, flat aluminum bar 1/8 inch (3 mm) thick that has predrilled holes every 6 inches (152 mm) on center. Consult Product Data Sheet for additional information.

E. Perimeter 14 Gage Bar: An FM-approved, heavy-duty, 14 gauge, galvanized or stainless, roll-formed steel bar used to attach membrane to roof decks. The formed steel is pre-punched with holes every 1 inch (25 mm) on center to allow various fastener spacing options. Consult Product Data Sheet for additional information.

2.6 WALKWAY PROTECTION

A. Walk Tred: A polyester reinforced, 0.090 inch (90mil/2.0 mm), weldable membrane with surface embossment. Used as a protection layer from rooftop traffic. Tred is supplied in rolls of 39.3 inches (1.0 m) wide and 32.8 feet (10 m) long. Consult Product Data Sheet for additional information.

2.7 MISCELLANEOUS ACCESSORIES

A. Aluminum Tape: A 2 inch (50 mm) wide pressure-sensitive aluminum tape used as a separation layer between small areas of asphalt contamination and the membrane and as a bond-breaker under the coverstrip at clad joints.

B. Sealing Tape Strip: Compressible foam with pressure-sensitive adhesive on one side. Used with metal flashings as a preventive measure against air and wind blown moisture entry.

C. Multi-Purpose Tape: A high performance sealant tape used with metal flashings as a preventive measure against air and wind blown moisture entry.

2.8 SEALANTS AND PITCH POCKET FILLERS

A. Multi-Purpose Sealant (for termination details).

B. Adhesive (two-component urethane adhesive for pitch pocket toppings).

C. Depending on substrates, the following sealants are options for temporary overnight tie-ins:

1. Type III hot asphalt conforming to ASTM D312 (latest version).
2. Multiple layers of roofing cement and felt.
3. Spray-applied, water-resistant urethane foam.
4. Mechanical attachment with rigid bars and compressed sealant.

2 .9 MISCELLANEOUS FASTENERS AND ANCHORS

A. All fasteners, anchors, nails, straps, bars, etc. shall be post-galvanized steel, aluminum or stainless steel. Mixing metal types and methods of contact shall be assembled in such a manner as to avoid galvanic corrosion. Fasteners for attachment of metal to masonry shall be expansion type fasteners with stainless steel pins. All concrete fasteners and anchors shall have a minimum embedment of 1¼ inch (32 mm) and shall be approved for such use by the fastener manufacturer. All miscellaneous wood fasteners and anchors used for flashings shall have a minimum embedment of 1 inch (25 mm) and shall be approved for such use by the fastener manufacturer.

2 .10 RELATED MATERIALS

A. Wood Nailer: Treated wood nailers shall be installed at the perimeter of the entire roof and around such other roof projections and penetrations as specified on Project Drawings. Thickness of nailers must match the insulation thickness to achieve a smooth transition. Wood nailers shall be treated for fire and rot resistance (wolmanized or osmose treated) and be #2 quality or better lumber. Creosote or asphalt-treated wood is not acceptable. Wood nailers shall conform to Factory Mutual Loss Prevention Data Sheet 1-49. All wood shall have a maximum moisture content of 19% by weight on a dry-weight basis.
Note: Wood nailers or wood blocking for snow protection system shall be installed prior to the installation of the roof membrane whenever possible.

B. Plywood: When bonding directly to plywood, a minimum 1/2 inch (12 mm) CDX (C side out), smooth-surfaced exterior grade plywood with exterior grade glue shall be used. Rough-surfaced plywood or high fastener heads will require the use of an attached ¼" Dens Deck Prime behind the flashing membrane. Plywood, if used shall have a maximum moisture content of 19% by weight on a dry weight basis.

PART 3 EXECUTION

3 .1 PRE-CONSTRUCTION CONFERENCE

A. The Applicator, Owner's Representative/Designer and Manufacturer(s) shall attend a pre-construction conference. The meeting shall discuss all aspects of the project including but not limited to:

1. Safety
2. Set up
3. Construction schedule
4. Contract conditions
5. Coordination of the work

3 .2 SUBSTRATE CONDITION

A. Applicator shall be responsible for acceptance or provision of proper substrate to receive new roofing materials. Applicator shall verify that the work done under related sections meets the following conditions:

1. Roof drains and/or scuppers have been reconditioned and/or replaced and installed properly.

2. Roof curbs, nailers, equipment supports, vents and other roof penetrations are properly secured and prepared to receive new roofing materials.
3. All surfaces are smooth and free of dirt, debris and incompatible materials.
4. All roof surfaces shall be free of water, ice and snow.

3 .3 SUBSTRATE PREPARATION

A. The roof deck and existing roof construction must be structurally sound to provide support for the new roof system. The Applicator shall load materials on the rooftop in such a manner as to eliminate risk of deck overload due to concentrated weight. The Owner's Representative shall ensure that the roof deck is secured to the structural framing according to local building code and in such a manner as to resist all anticipated wind loads in that location.

B. General Criteria: All existing roofing, base flashing, deteriorated wood blocking or deteriorated metal flashings shall be removed. Remove only that amount of roofing and flashing which can be made weather tight with new materials during a one-day period or before the onset of inclement weather.

C. Poured Structural Concrete Deck: The roof deck shall be installed in accordance with the concrete panel manufacturer's requirements and industry practice. The surface shall have a smooth and level finish and shall be free of dust, moisture, oil or loose debris. All joints between precast units shall be grouted. Any differentials in height between precast units shall be feathered for a smooth transition. Sharp ridges or other projections above the surface shall be removed before roofing. Panels shall be secured to structural supports as recommended by deck manufacturer.

D. Precast/Prestressed Concrete Deck: The roof deck shall be smooth, even, free of dust, dirt, excess moisture or oil and be structurally sound. All joints between precast units shall be grouted. Any differentials in height between precast units shall be feathered for a smooth transition. Any deteriorated decking shall be repaired.

3 .4 SUBSTRATE INSPECTION

A. A dry, clean and smooth substrate shall be prepared to receive the adhered roof system.

B. The Applicator shall inspect the substrate for defects such as excessive surface roughness, contamination, structural inadequacy, or any other condition that will adversely affect the quality of work.

C. The substrate shall be clean, smooth, dry, free of flaws, sharp edges, loose and foreign material, oil and grease. Roofing shall not start until all defects have been corrected.

D. All roof surfaces shall be free of water, ice and snow.

E. All products shall be applied over compatible and accepted substrates only.

3 .5 WOOD NAILER INSTALLATION

A. Install continuous wood nailers at the perimeter of the entire roof and around roof projections and penetrations as shown on the Detail Drawings.

B. Nailers shall be anchored to resist a minimum force of 300 pounds per lineal foot (4,500 Newtons/lineal meter) in any direction. Individual nailer lengths shall not be less than 3 feet (0.9 meter) long. Nailer fastener spacing shall be at 12 inches (0.3 m) on center or 16 inches (0.4 m) on center if necessary to match the structural framing. Fasteners shall be staggered 1/3 the nailer width and installed within 6 inches (0.15 m) of each end. Two fasteners shall be installed at ends of nailer lengths. Nailer attachment shall also meet the requirements of the current Factory Mutual Loss Prevention Data Sheet 1-49.

C. Thickness shall be as required to match substrate and/or insulation height to allow a smooth transition.

D. Any existing nailer woodwork which is to remain shall be firmly anchored in place to resist a minimum force of 300 pounds per lineal foot (4,500 Newtons/lineal meter) in any direction and shall be free of rot, excess moisture or deterioration. Only woodwork shown to be reused in Detail Drawings shall be left in place. All other nailer woodwork shall be removed.

3 .6 INSULATION INSTALLATION

General Criteria:

A. Insulation shall be installed according to insulation manufacturer's instructions.

B. Insulation shall be neatly cut to fit around penetrations and projections.

C. Install tapered insulation in accordance with insulation manufacturer's shop drawings.

D. Install tapered insulation around drains creating a drain sump.

E. Do not install more insulation board than can be covered with membrane by the end of the day or the onset of inclement weather.

F. Use at least 2 layers of insulation when the total insulation thickness exceeds 2-1/2 inches (64 mm). Stagger joints at least 12 inches (0.3 m) between layers.

G. Olympic Olybond500/ 500 Spot Shot Adhesive

1. Apply over properly installed and prepared substrates in bands 12 in. (13 mm) o.c. Allow to rise approximately 1/2-3/4 in. (13-19 mm). Lay insulation boards in adhesive and walk into place to ensure full embedment. CAUTION: Walking insulation boards in immediately after placement into adhesive may cause slippage/movement until adhesive starts to set up. On roof slopes greater than 1/2 inch (13 mm) in 12 inches (305 mm), begin adhering insulation at low point and work upward to avoid slippage. One person should be designated to walk in, trim/slit and apply weight to all insulation boards to ensure adequate securement. Only areas that can be made completely watertight in the same day's operations shall be coated.

2. For multiple layers of insulation spray adhesive over the base layer once fully secured and follow procedures above for attachment of each insulation layer.

H. Approved Insulation Boards Adhered to Approved Roof Substrate/Deck:

1. Polyisocyanurate, 1 inch (25 mm) minimum thickness (required for Systems Warranty).
2. Dens Deck® Prime

I. For uneven surfaces, trimming or slitting of boards may be necessary.

J. A min. of 1 bar placed 4 ft. (1.2 m) from the roof edge and fastened 12 in. (305 mm) o.c. to the structural deck with acceptable fasteners is required after installation of the roof membrane on building heights in excess of 29 feet. The bar is to have a cover strip hot air welded over it.

K. Installation Guidelines:

1. Not recommended for use with insulation boards larger than 4x4 ft. (1.2x1.2 m).
2. Place insulation board into the adhesive shortly after it has reached its maximum rise (typically within 2 minutes) and walk into place.
3. Job site conditions may affect performance. Adhesive shall not be used if surface and/or ambient temperatures are below 45°F (7°C) during application or subsequent curing time.
4. Minimum product temperature before entering the dispenser should be 72°F (22°C).
5. Store between 45°F (7°C) and 95°F (35°C).
6. Protect from freezing, any product that does freeze must be removed from the job site and disposed of per State and Federal regulations.
7. Adhesive shall not be used during inclement weather.
8. Adhesive shall not be applied to wet or damp surfaces.

3.7 INSTALLATION OF MEMBRANE

A. The surface of the insulation or substrate shall be inspected prior to installation of the roof membrane. The substrate shall be clean, dry, free from debris and smooth with no surface roughness or contamination. Broken, delaminated, wet or damaged insulation boards shall be removed and replaced.

B. Solvent Based Adhesive: Over the properly installed and prepared substrate surface, adhesive shall be applied using solvent-resistant ¾ inch (19 mm) nap paint rollers. The adhesive shall be applied to the substrate at a rate according to manufacture's requirements. The adhesive shall be applied in smooth, even coating with no gaps, globs, puddles or similar inconsistencies. Only an area which can be completely covered in the same day's operations shall be coated with adhesive.

1. The Applicator shall count the amount of pails of adhesive used per area per day to verify conformance to the specified adhesive rate.
2. No adhesive shall be applied in seam areas. All membrane shall be applied in the same manner.

C. Water Based Adhesive: Over the properly installed and prepared substrate, adhesive shall be poured out of the pail and spread using notched ¼ inch x ¼ inch x ¼ inch (6 mm x 6 mm x 6 mm) squeegees. The adhesive shall be applied at a rate according to manufactures requirements (no adhesive is placed on back of the membrane). The formation of a film on the surface of the adhesive shall not be allowed to occur. The membrane shall be carefully unrolled into the wet adhesive while the edges are overlapped 3 inches (75 mm). The membrane shall be pressed firmly into the adhesive layer with a water-filled, foam-covered lawn roller by frequent rolling in two directions.

1. Water based adhesive shall not be used if temperatures below 40° F (5° C) are expected during application or subsequent drying time.
2. No adhesive shall be applied in seam areas. All membrane shall be applied in the same manner.
3. Waterbased adhesive shall not be used on vertical surfaces or sloped surfaces greater than a 2 inch (50 mm) rise per 1 horizontal foot (0.3 m).

3 .8 HOT-AIR WELDING OF SEAM OVERLAPS

A. General

1. All seams shall be hot-air welded. Seam overlaps should be 3 inches (75 mm) wide when automatic machine-welding and 4 inches (100 mm) wide when hand-welding, except for certain details.
2. Welding equipment shall be provided by or approved by membrane manufacture. All mechanics intending to use the equipment shall have successfully completed a training course provided by a Manufacture's Technical Representative prior to welding.
3. All membrane to be welded shall be clean and dry.

B. Hand-Welding

1. Hand-welded seams shall be completed in two stages. Hot-air welding equipment shall be allowed to warm up for at least one minute prior to welding.
2. The back edge of the seam shall be welded with a narrow but continuous weld to prevent loss of hot air during the final welding.
3. The nozzle shall be inserted into the seam at a 45 degree angle to the edge of the membrane. Once the proper welding temperature has been reached and the membrane begins to "flow," the hand roller is positioned perpendicular to the nozzle and rolled lightly. For straight seams, the 1-1/2 inch (40 mm) wide nozzle is recommended for use. For corners and compound connections, the 3/4 inch (20 mm) wide nozzle shall be used.

C. Machine Welding

1. Machine welded seams are achieved by the use of automatic welding equipment. When using this equipment, manufacture's instructions shall be followed and local codes for electric supply, grounding and over current protection observed. Dedicated circuit house power or a dedicated portable generator is recommended. No other equipment shall be operated simultaneously off the generator.
2. Metal tracks may be used over the deck membrane and under the machine welder to minimize or eliminate wrinkles.

D. Quality Control of Welded Seams

1. The Applicator shall check all welded seams for continuity using a rounded screwdriver. Visible evidence that welding is proceeding correctly is smoke during the welding operation, shiny membrane surfaces, and an uninterrupted flow of dark grey material from the underside of the top membrane. On-site evaluation of welded seams shall be made daily by the Applicator at locations as directed by the Owner's Representative or membrane manufacture's representative. One inch (25 mm) wide cross-section samples of welded seams shall be taken at least three times a day. Correct welds display failure from shearing of the membrane prior to separation of the weld. Each test cut shall be patched by the Applicator at no extra cost to the Owner. Seam samples will be kept and provided to the owner's representative or manufacture's representative for inspection. Sample will be dated with time and location where sample was taken.

3 .9 MEMBRANE FLASHINGS

A. All flashings shall be installed concurrently with the roof membrane as the job progresses. No temporary flashings shall be allowed without the prior written approval of the Owner's Representative and Manufacture. Approval shall only be for specific locations on specific dates. If any water is allowed to enter under the newly completed roofing, the affected area shall be removed and replaced at the Applicator's expense. Flashing shall be adhered to compatible, dry, smooth, and solvent-resistant surfaces. Use caution to ensure adhesive fumes are not drawn into the building.

B. Adhesive for Membrane Flashings

1. Over the properly installed and prepared flashing substrate, adhesive shall be applied according to instructions found on the Product Data Sheet. The adhesive shall be applied in smooth, even coats with no gaps, globs or similar inconsistencies. Only an area which can be completely covered in the same day's operations shall be flashed. The bonded sheet shall be pressed firmly in place with a hand roller.
2. No adhesive shall be applied in seam areas that are to be welded. All panels of membrane shall be applied in the same manner, overlapping the edges of the panels as required by welding techniques.

C. Install base flashing according to the Detail Drawings with approved fasteners into the structural deck at the base of parapets, walls and curbs. Peal stop is required by at the base of all tapered edge strips and at transitions, peaks, and valleys according to manufacture's details.

D. All flashings shall extend a minimum of 8 inches (0.2 m) above roofing level unless otherwise accepted in writing by the Owner's Representative and Manufacture's Technical Department.

E. All flashing membranes shall be consistently adhered to substrates. All interior and exterior corners and miters shall be cut and hot-air welded into place. No bitumen shall be in contact with the PVC membrane.

F. All flashing membranes shall be mechanically fastened along the counter-flashed top edge with pealstop at 6-8 inches (0.15-0.20 m) on center.

G. All flashings shall be terminated according to manufacture's recommended details.

H. All flashings that exceed 30 inches (0.75 m) in height shall receive additional securement.

3 .10 METAL FLASHINGS

A. Metal details, fabrication practices and installation methods shall conform to the applicable requirements of the following:

1. Factory Mutual Loss Prevention Data Sheet 1-49 (latest issue).
2. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA) - latest issue.

B. Complete all metal work in conjunction with roofing and flashings so that a watertight condition exists daily.

C. Metal shall be installed to provide adequate resistance to bending to allow for normal thermal expansion and contraction.

D. Metal joints shall be watertight.

E. Metal flashings shall be securely fastened into solid wood blocking. Fasteners shall penetrate the wood nailer a minimum of 1 inch (25 mm).

F. Airtight and continuous metal hook strips are required behind metal fascias. Hook strips are to be fastened 12 inches (0.3 m) on center into the wood nailer or masonry wall.

G. Counter flashings shall overlap base flashings at least 4 inches (100 mm).

H. Hook strips shall extend past wood nailers over wall surfaces by 1-1/2 inch (38 mm) minimum and shall be securely sealed from air entry.

3 .11 EDGE-TITE METAL

A. Weld one side of a strip of membrane along that perimeter edge to the top of the membrane. Position the membrane over the roof edge and down outside face of wall covering wood nailer(s) completely, allowing 1/2 inch (13 mm) excess membrane. Hot-air weld all seams making sure there are no voids in welds.

B. Apply a 3/8 inch (10 mm) bead of NP-1 sealant to the intersection of the right angle of the clean base rail. Install base rail from right to left as seen from rooftop, lapping joints 1 inch (25 mm).

C. Fasten base rail into the side of the nailer 12 inches (0.3 m) on center using #12 x 1-5/8 inch corrosion-resistant fasteners provided with Edge-Tite. Field cut sections as necessary. A second row of fastening may be required based upon site conditions. Exercise caution at perimeter of roof. Workers shall follow OSHA safety procedures.

D. Position spring clips at 6 foot (1.8 m) centers on base rail. Locate spring clips at fascia cover laps and at mid-span of fascia cover.

E. Fascia covers are installed from right to left as seen from rooftop. Position fascia cover on top of base rail and overlap preceding panel by 1 inch (25 mm) at notches provided. Snap covers into place. Field cut where necessary. Exercise caution at perimeter of roof. Workers shall follow OSHA safety procedures.

3 .12 WALKWAY INSTALLATION

A. Walkway: Roofing membrane to receive Walkway shall be clean and dry. Place chalk lines on deck sheet to indicate location of Walkway. Apply a continuous coat of adhesive to the deck sheet and the back of Walkway in accordance with Manufacture's technical requirements and press Walkway into place with a water-filled, foam-covered lawn roller. Clean the deck membrane in areas to be welded. Hot-air weld the entire perimeter of the Walkway to the PVC deck sheet. Check all welds with a rounded screwdriver. Re-weld any inconsistencies. **Important:** Check all existing deck membrane seams that are to be covered by Walkway with rounded screwdriver and reweld any inconsistencies before Walkway installation. Do not run Walkway over bars.

3 .13 TEMPORARY CUT-OFF

A. All flashings shall be installed concurrently with the roof membrane in order to maintain a watertight condition as the work progresses. All temporary waterstops shall be constructed to provide a 100% watertight seal. The stagger of the insulation joints shall be made even by installing partial panels of insulation. The new membrane shall be carried into the waterstop. The waterstop shall be sealed to the deck and/or substrate so that water will not be allowed to travel under the new or existing roofing. The edge of the membrane shall be sealed in a continuous heavy application of sealant as described in Section 2.10. When work resumes, the contaminated membrane shall be cut out. All sealant, contaminated membrane, insulation fillers, etc. shall be removed from the work area and properly disposed of off site. None of these materials shall be used in the new work.

B. If inclement weather occurs while a temporary waterstop is in place, the Applicator shall provide the labor necessary to monitor the situation to maintain a watertight condition.

C. If any water is allowed to enter under the newly-completed roofing, the affected area shall be removed and replaced at the Applicator's expense.

3 .14 COMPLETION

A. Prior to demobilization from the site, the work shall be reviewed by the Owner's Representative and the Applicator. All defects noted and non-compliances with the Specifications or the recommendations of Manufacture's shall be itemized in a punch list. These items must be corrected immediately by the Applicator to the satisfaction of the Owner's Representative and manufacture prior to demobilization.

B. All Warranties referenced in this Specification shall have been submitted and have been accepted at time of contract award.

END OF SECTION 07 54 19

Site Visit Attendance List

Company	Name	
Airfield Western, LLC.	Jay Reid	
Airfield Western, LLC.	Craig Hancock	
Driver Construction Company, Inc.	Jim Duren	
Driver Construction Company, Inc.	Ronald Eric Bray	
Driver Construction Company, Inc.	Dave Sweatt	
Driver Construction Company, Inc.	Ronald Ray Young	
Driver Construction Company, Inc.	Dennis Adams	
Driver Construction Company, Inc.	Jerry Young Tolbert	
Driver Construction Company, Inc.	Ronald Eric Bray	
Driver Construction Company, Inc.	Walter B. Sams, Jr.	
J. Wayne Poole, Inc.	J. Wayne Poole	
J. Wayne Poole, Inc.	Jason Loy	
JONES-MORGAN, LLC	Brian Jones	
JONES-MORGAN, LLC	Ryan Tenney	
JONES-MORGAN, LLC	Dan Martin	
NAVCON, LLC	Jeff Erisman	
NAVCON, LLC	Jack Crowe	
NeoCom Solutions	Hy Tang	
NeoCom Solutions	Dennis Goddard	
Phoenix Solutions	Keven Hawkins	
Phoenix Solutions	Mike Gillis	
Reams Enterprises, Inc.	Patrick Reams	
Reams Enterprises, Inc.	John Conrad	
Reams Enterprises, Inc.	Kenneth Bennett	
Reams Enterprises, Inc.	Al Stoutamire	
Waters Construction Inc	Aaron Waters	
Waters Construction Inc	Anthony Houston	
H&H Renovations	Miteshkum Patel	
H&H Renovations	James Puett	
Kevin Price General Contractors	Wayne Aiken	